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**Culbertson et al.**

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(54) **FULL DUPLEX TRANSCEIVER**

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(57) **ABSTRACT**

A RF front end to an IF generator and post-processor whereby the IF generator output is variable. The transceiver up-conversion path includes an IF Filter, the output of which is input to a mixer with the output of a fixed Phase Locked Oscillator (PLO). The mixer output is input to a band-pass filter and amplified. With a single antenna configuration, the amplifier output connects to either an internal or external diplexer that interfaces to the antenna. With a dual antenna configuration, the amplifier output interfaces directly to the antenna. Similarly, the down-conversion path includes an internal or external diplexer in the single antenna configuration, a band-pass filter, a RF amplifier, a mixer that receives the RF amplifier output and the fixed PLO as inputs, an IF Filter, IF amplifier, and an attenuator for interfacing to the IF post-processor. A user-interface allows RF TX and RX frequency selection, data rate selection, and configurable options including internal or external diplexer, internal or external oscillator reference, and TX amplifier keying to allow simplex, half duplex, or full duplex communication.

9 Claims, 4 Drawing Sheets

